A REPORT ON

VINYL WINDOWS INSTALLED

IN DUNNVILLE OH-2

Dated:
January 4, 1988

Per:
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REPORT

PURPOSE

The purpose of this paper is to record the evaluation on installation, performance and tenant satisfaction on vinyl-windows in Ministry's "Dunnville, OH-2" project in Southern region.

BACKGROUND

1. The project consists of two storey sixteen (16) semi-detached family housing units on Main and Queen Street in Dunnville and has been occupied for approximately fourteen (14) years.

2. Projects original windows were wood frame, single glazed, semi-sashed full sliders or combination type. (See photograph No. 1). They were subsequently double glazed with storm sash approximately ten (10) years ago. (See photograph No. 2).

3. The windows were drafty and difficult to operate due to frame deformation. Wood frames had suffered significant dry-rot and paint was peeling. Full replacement was therefore considered to be the only logical option. (See photographs No. 3, 4, 5 and 6).

4. With the significant improvements in vinyl raw materials to overcome discolouring and brittleness in low temperatures, vinyl windows are making strong inroads in the residential replacement market. Also the new CSA Standard CAN3-A440-M84 includes many additional material tests and performance requirements not covered by the previous CSA A274-M1980 standard.

5. Vinyl windows compare with other types as follows:

Steel-Thermobroken	Wood, Vinyl & Aluminum	Vinyl or Aluminum covered wood
$29.00/sq. ft.	$25.00/sq. ft	$27.00/sq. ft.

   Additionally therefore, due to low maintenance and good insulation value, it was decided that vinyl-windows be used on trial basis for this retrofit work as an Applied Research and Development project.

6. New visual design was selected to be full sliders for kitchens and bedrooms and combination fixed-sliders for living and dining rooms. All fixed and operating sash were sealed double glazed units. Windows were manufactured by Alcan Aluminum. Models 8V30 and 8V10 were selected. They have now been in place for approximately a year. (See photographs No: 7 and 8).

EVALUATION

The product, installation and performance assessment consisted of the following checks. The evaluations are noted against each step:

1. Installation Quality
   - Appeared installed square, plumb and finished very neatly.
   - Installation quality very satisfactory.

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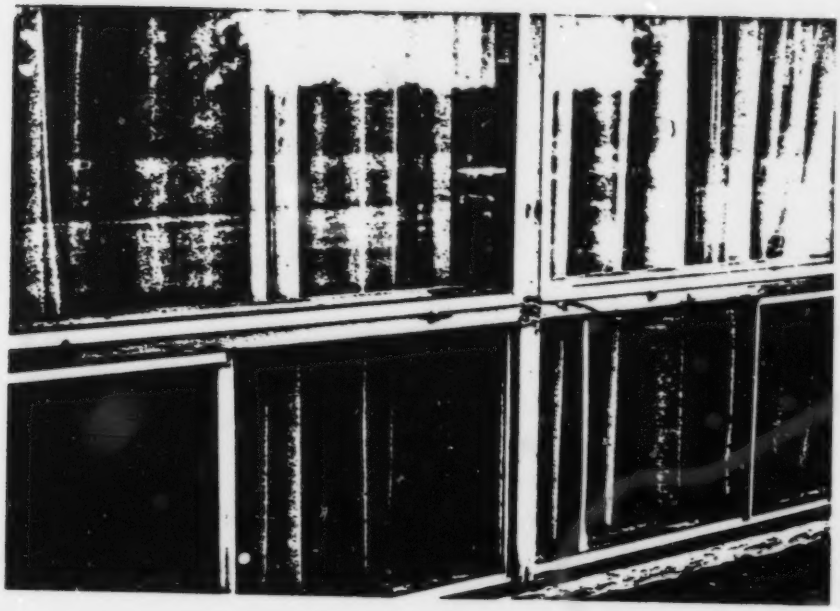

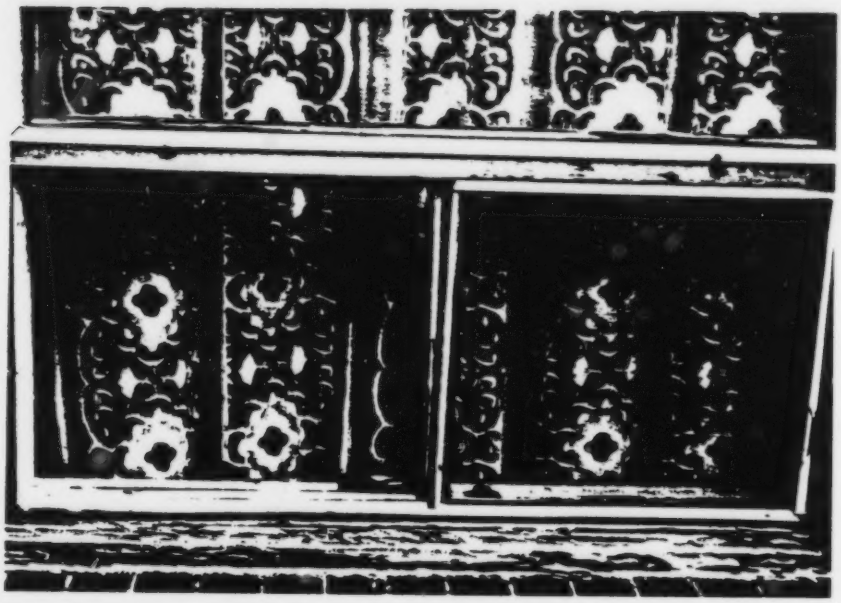

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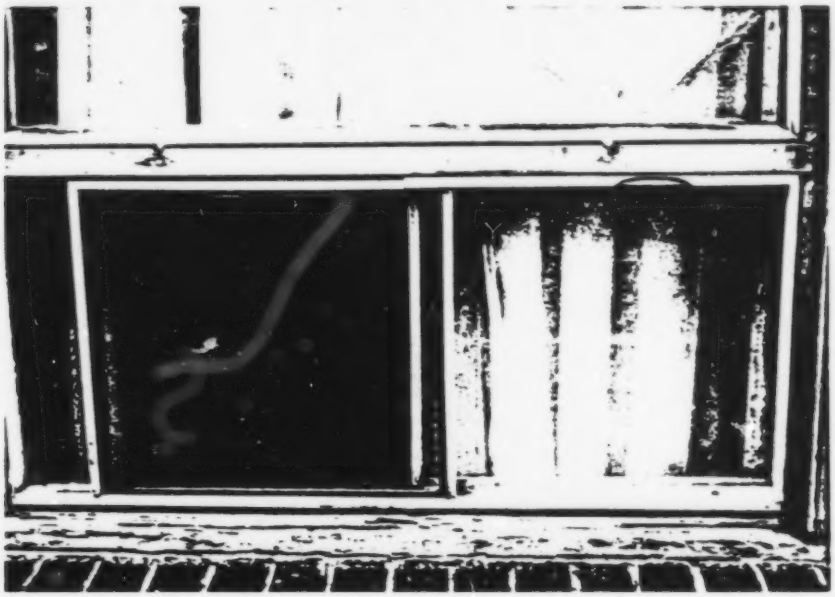

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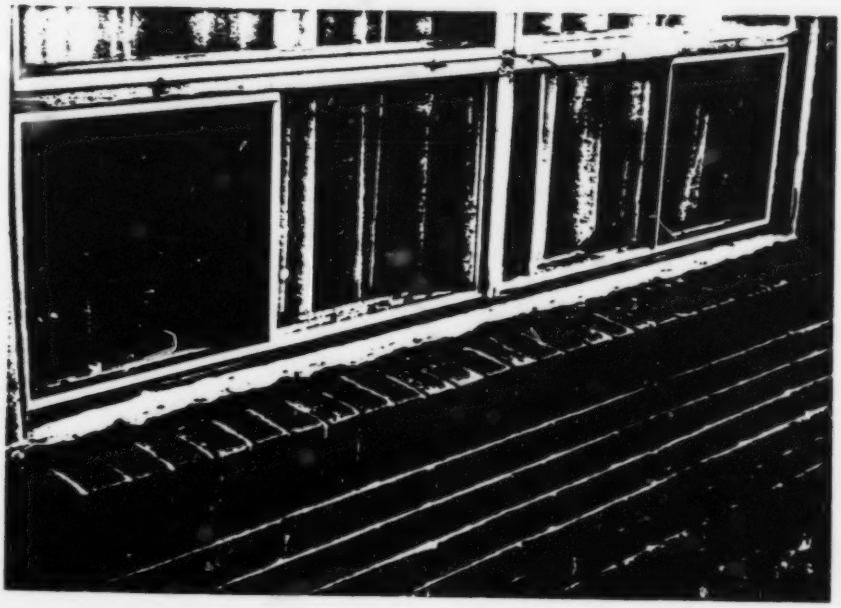

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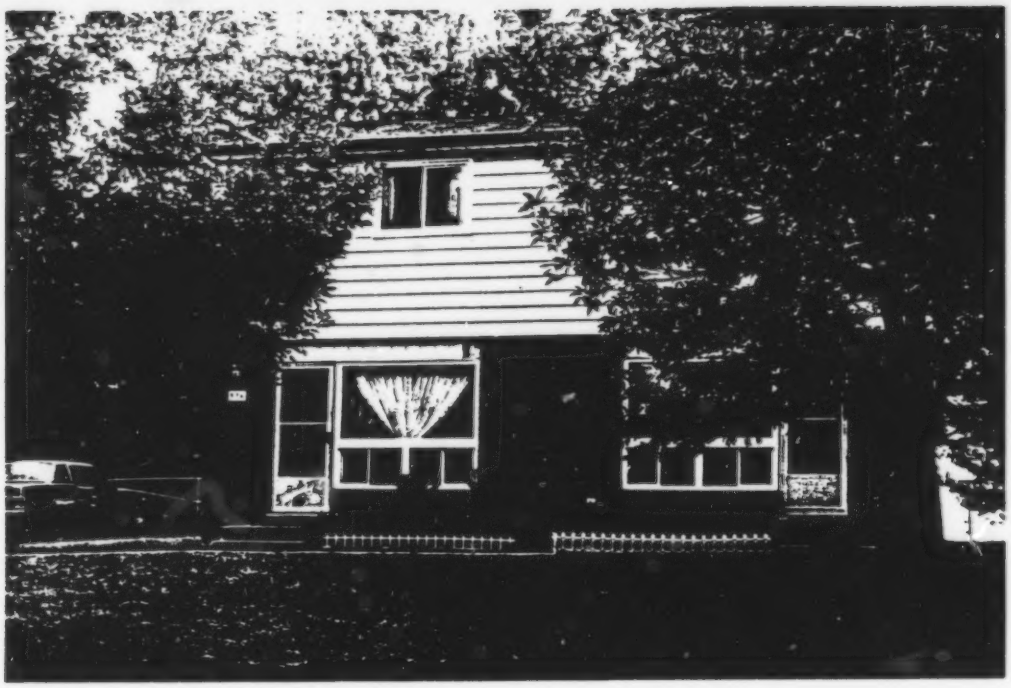

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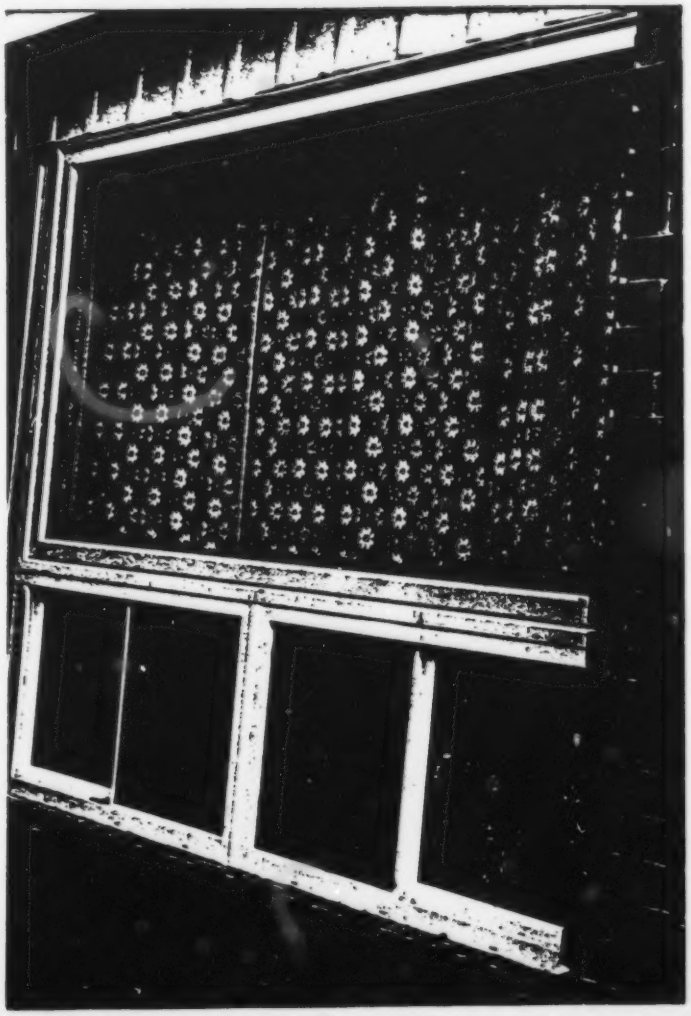

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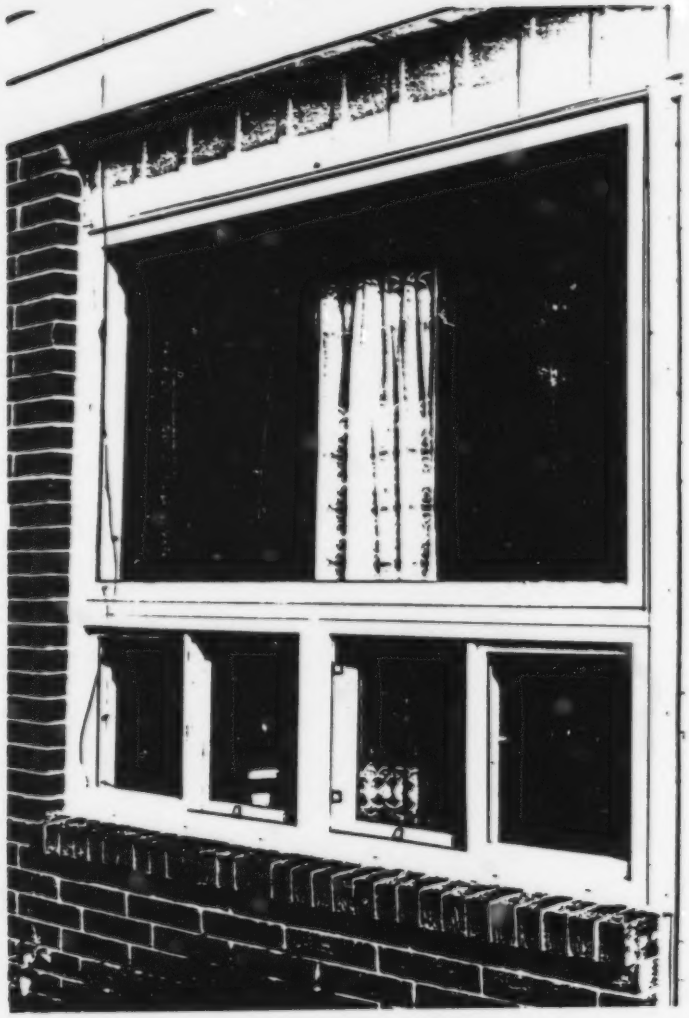
2. General Appearance	- No visual deterioration present in the frame, i.e. no extrusions broken, bent, dented. Frame corner joints flat, smooth and invisible (i.e. fusion welded). - All glass without any streaks, bubbles, etc. - General appearance is rated high. (See photograph No. 9).
3. Sealed glass units	- Good transparency - i.e. no dust or condensation between panes. - Condition of sealed unit - satisfactory.
4. Sliders Operation	- Tenant indicated that windows slide easy. - Sliders could not be removed from the frame for cleaning. This was due to uncontrolled amount of urethane foam injected between the opening and the window unit and the pressure developed caused slight deflection of the main frame.
5. Hardware	- Attached firm to the frame, no damage yet, locked securely. - Hardware quality satisfactory.
6. Screens	- Tight fitting, well secured in the frame. - Screens satisfactory.
7. Weep Holes	- Adequate number, evenly placed, not plugged.
8. Weatherstripping	- Woven pile type, fully engaged. Tenants happy with windows air-tightness. No water leakage reported. - Weatherstripping satisfactory.
9. Caulking work	- Acceptable width, maximum 10 mm, smooth. (See photograph No. 10). Site supervisor took the trouble of measuring each opening, rather than assuming that all typicals will be exactly equal. - Caulking work: professional.



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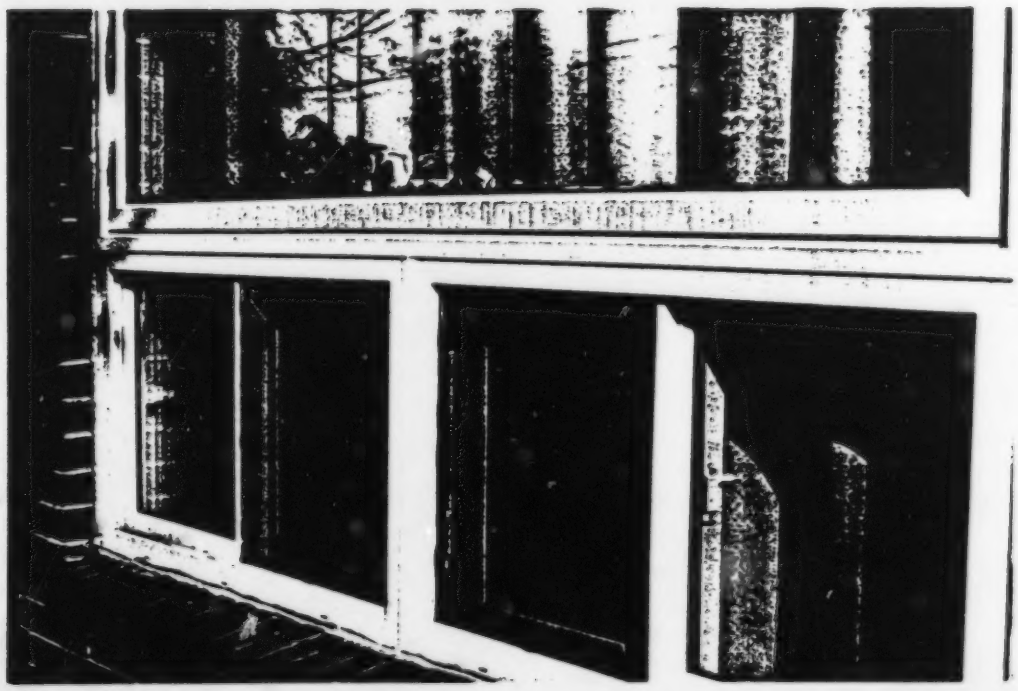

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RECOMMENDATIONS

Vinyl windows where cost-competitive, should be tried on other ground-related housing (only) subject to the following:

1. Windows must conform to the latest CSA standard CAN3-A440-M84.

2. Colour co-ordination with building facade materials and building interior decoration should be satisfactory (since they are predominantly offered in white and brown colours).

3. Manufacturer provides at least five (5) years warranty against discolouring and extrusion breakage. Ten (10) years warranty is preferred.

4. Amount of urethane foam injected between the opening and window unit should be very carefully controlled (dry set volume = average crack width x depth x perimeter), otherwise pressure developed could deflect the frame making sliders difficult or impossible to remove from the frame for cleaning.

   Note: This problem in Dunnville project is to be rectified by sanding the edges of interior verticals of the track.

5. Hardware attachment is a problem in vinyl windows since screws do not hold well in this material. Therefore frame should encase steel reinforcement at critical points both to receive screws and ensure rigidity.

6. Hardware itself should be heavy duty type since it is prone to breakage making security inadequate.

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